

AD-A031 015

LOGISTICS MANAGEMENT INST WASHINGTON D C  
THE NATIONAL STRATEGIC AIRLIFT DILEMMA. VOLUME I, (U)  
APR 76 H M ESTES

F/G 15/5

SD-321

UNCLASSIFIED

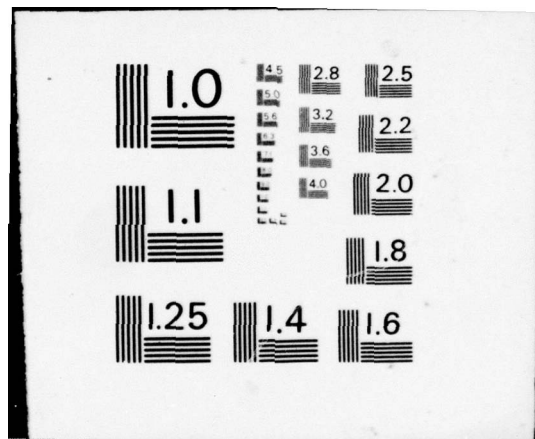
NL

1 of 1  
ADA031015



END

DATE  
FILMED  
11 - 76



ADA031015

FL

(2)

(6)

THE NATIONAL STRATEGIC  
AIRLIFT DILEMMA •

Volume I,

(11)

April 1976

(15)

SD-321

(12)

32p.

(10)

Howell M. Estes, Jr

DDC  
RECEIVED  
OCT 21 1976  
A

Prepared pursuant to Department of Defense Contract No. SD-321. Views or conclusions contained in this document should not be interpreted as representing official opinion or policy of the Department of Defense. Except for use for Government purposes, permission to quote from or reproduce portions of this document must be obtained from the Logistics Management Institute.

LOGISTICS MANAGEMENT INSTITUTE  
4701 Sangamore Road  
Washington, D. C. 20015

DISTRIBUTION STATEMENT A

Approved for public release;  
Distribution Unlimited.

1473

210 475

LB

## PREFACE

This document, Volume I of a two-volume report addressing the U. S. strategic airlift program, attempts to put the strategic airlift problem in perspective. The intent is to provide a basis for better understanding the complex factors that influence the program.

Volume II, The National Strategic Airlift Dilemma: An Approach to Solution, presents a number of approaches to solution, or at least amelioration, of the problems cited in Volume I.

ACCESSION for		
HTS	White Section	<input checked="checked" type="checkbox"/>
DDC	Buff Section	<input type="checkbox"/>
UNANNOUNCED		<input type="checkbox"/>
JUSTIFICATION		
BY		
DISTRIBUTION/AVAILABILITY CODES		
Dist.	AVAIL. and/or SPECIAL	
A		

## TABLE OF CONTENTS

	<u>Page</u>
PREFACE . . . . .	ii
INTRODUCTION . . . . .	1
CURRENT SITUATION . . . . .	5
THE PROBLEM . . . . .	5
INFLUENCING FACTORS . . . . .	6
- Airlift Requirements in National Contingency Plans vs. National Strategic Airlift Resource Capability . . . . .	6
- Strategic Airlift Enhancement . . . . .	6
- Strategic Airlift Readiness . . . . .	9
- MAC Employment in Peacetime Logistics Support . . . . .	14
- The Civil Reserve Air Fleet (CRAF) . . . . .	21
SUMMARY . . . . .	25

## THE NATIONAL STRATEGIC AIRLIFT DILEMMA

### INTRODUCTION

Military airlift as employed in World War II and in the Korean War served both strategic and tactical requirements. In both of these roles, however, airlift capability was limited. In the tactical role, airlift missions included troop and materiel delivery by both air drop and air landing and rare instances of such delivery by glider tow operations. The principal mission was in resupply of forces deployed by other than air transport. Strategically, airlift was employed almost exclusively for the movement of casualties from CONUS to the war theaters and between theaters and for the transport of critical resupply cargo over these same routes. That airlift was not used in this period in other roles in direct support of combat operations was due to the characteristics of the airlift aircraft then available. These were primarily commercial airliners, built for passenger carriage and converted to military use. Their features included reciprocating engine power, slow speed, relatively short range with any major payload, small cabin size in both dimensions and overall cube, side door loading and cabin floor level substantially above normal truck bed height. In short, these aircraft were not well suited to military usage and did not have the capability for employment in combat operations on missions other than those to which they were assigned. In both of these conflicts, the commercial airline industry augmented military strategic airlift through contracts. Equipped with the same aircraft as the military, these contracted commercial airlines performed missions in parallel with the military aircraft.

The lessons of these wars, however, taught military planners that airlift had the potential to be a major influence in the conduct and the outcome of combat operations. They saw that properly designed aircraft could deliver heavy firepower units close to the battle scene in short periods of time even from remote locations. A large

enough force of such aircraft could deliver armored divisions to an overseas battle area in days rather than the weeks required for surface transport. Further, an airlift force of this size could also resupply the divisions it had deployed or could serve as the logistics lifeline to advanced area troops engaged in an unexpected conflict until surface supply lines could be established. They also saw that the ability to deliver major forces rapidly to any threatened or developing conflict anywhere in the world could have a deterrent effect on possible initiators of such conflicts. As a first step toward construction of an effective strategic airlift force, in 1948 the Air Transport Command and the Naval Air Transport Service were combined into the Military Air Transport Service (later redesignated as the Military Airlift Command) so that strategic airlift planning and operations would come under centralized control and direction.

To realize the military potential offered by strategic airlift, it was necessary to translate these operational concepts into aircraft design. Studies indicated that strategic airlifters should be fast, have long range with meaningful payload, carry heavy payloads, have cabin dimensions and floor structure accepting large items of military equipment such as wheeled and tracked vehicles, be easily loaded and unloaded with preference for such loading operations at truck bed height, have provisions for air drop of personnel and heavy loads and possess characteristics of ruggedness and slow landing speed which would permit use of small, poorly prepared airstrips. In accordance with the conclusions of these studies, development of the C-124 was started in 1947, of the C-133 in 1952 and of the C-132 in 1952.

Unfortunately, the success of these early efforts to produce an effective strategic airlift force was limited by technology and by priorities. The C-124 was the last airlifter to be powered by reciprocating engines. The cabin was of relatively large dimensions but the floor level was far above truck bed height. Vehicle loading was accomplished through use of a pair of folding, narrow ramps, integral to the aircraft and hydraulically operated, which were separated by normal vehicle axle width. The steep

incline and the width restrictions of this loading device made loading operations slow and tedious. General cargo could be loaded through an elevator through the belly of the aircraft or up the loading ramp. The C-133 was a turboprop aircraft. Loading was at truck bed height and easily accomplished up a full span ramp at the rear of the aircraft. Air drop of personnel and large loads was possible. It was fast, rugged and had long range with substantial payload. The generous dimensions and heavy floor structure of the C-133 permitted carriage of a sizeable proportion of organic military equipment. Technology limited the C-133 in that the state of the art in high power turboprop engines and in matching propellers was not adequately advanced to ensure a reliable power plant. Concern over this deficiency coupled with the funding demands of other higher priority projects led to procurement of only 49 of these aircraft. The C-132, in concept, was the forerunner of today's C-5. The functional and dimensional characteristics of its design were markedly similar to the C-5. The power plant was to be turboprop with engines and propellers of even greater power and size than those installed on the C-133. Severe technical problems were encountered in the power plant development and, once again, higher priorities for other weapon systems brought funding disaster. The C-132 project was thus cancelled in 1957.

In the early 1960's, the building of a modern, effective strategic airlift force was assured by developments in technology and in national defense policy. Technological advances in aerodynamics and in airframe construction and particularly in the thrust and fuel economy of large turbine engines enabled manufacturers to design aircraft which would meet or essentially meet all military airlift aircraft specifications. At about the same time, the drive to reduce force levels stationed overseas while still assuring our allies of immediate reinforcement in the event of threat of war and the realization that small, non-nuclear wars which might erupt in areas affecting United States interests would require rapid force deployment led to a major change in

national defense policy. This change, for all other than all-out nuclear war, based our policy on rapid, measured, flexible response to any developing situation threatening United States interests or those of the allies to which we were committed by mutual defense pacts and treaties. The revised policy demanded a strategic airlift force of substantial size capable of deploying all principal elements of heavy firepower anywhere in the world and of resupplying those elements once deployed.

During the 1960's, then, for the first time in military history, the United States developed the capability for rapid mass delivery and subsequent support of all elements of firepower to any area over intercontinental distances. This national asset resides in the National Strategic Airlift Resource (for use herein, defined as the combined capability of International Civil Reserve Air Fleet and the strategic airlift force of the Military Airlift Command) based firstly on the C-130, C-141 and C-5 family of turbine powered aircraft designed specifically for military force deployment. Of equal importance, particularly in resupply of and personnel replacement for deployed military forces, were the actions taken during this time period regarding the second component of the National Strategic Airlift Resource, the Civil Reserve Air Fleet (CRAF). In the early 1960's, the relationships between the CRAF and the DOD and the rules for immediate callup of the CRAF committed aircraft were clarified and formalized. Further, the DOD's offering of incentives such as the Mobilization Base Index and Expanded Dollar Contracts to CRAF participants throughout the 1960's stimulated a 487.42% increase in CRAF cargo capability.

Only through the national asset represented by the Military Airlift Command and the Civil Reserve Air Fleet can we support our existing national defense policy of rapid, measured, flexible response to contingencies affecting our national interests. The possession of the capability represented by the National Strategic Airlift Resource adds to overall United States deterrent posture. For both national defense policy and deterrent effect to be viable and to realize the military benefits of almost

\$10 billion invested in aircraft, spares support, communications and world wide operating facilities for the airlift system, it is essential that the strength and readiness of the National Strategic Airlift Resource be maintained at a level consistent with the airlift requirements specified in war and contingency planning.

#### CURRENT SITUATION

In recent years, wartime contingency plans have become heavily dependent on strategic airlift and the overall airlift requirements in those plans have increased significantly. Due to a variety of complex and interacting adverse factors, however, the combined capability of the Military Airlift Command and the Civil Reserve Air Fleet has not been augmented sufficiently to keep pace with this escalation in contingency airlift demand and the efforts of the military airlift force to maintain adequate readiness have not been fully supported. As a result, the successful execution of war contingency plans is being jeopardized. Further, although modern strategic airlift has become a major force in influencing the shaping of contingency plans and war strategy, its full potential is not being realized because recognition of its current primary role is not sufficiently widespread to insure full scale support of the programs through which higher levels of capability could be attained.

#### THE PROBLEM

Stated in its simplest terms, the problem faced by all government agencies holding responsibility for the shaping and execution of national defense policy is to determine and to implement the courses of action necessary to rectify the growing imbalance between national strategic airlift capability and the requirements for its employment as set forth in existing national contingency plans. The alternatives are to insure the adequacy of airlift to meet the contingency planning requirements or to modify those requirements toward a lesser dependence on airlift. In view of our nation's numerous mutual defense pact commitments, the latter of these alternatives would not appear to be acceptable.

## INFLUENCING FACTORS

In these days of violently conflicting priorities both within the total national budget and within the national defense budget, assessment of the proper priority relationships among various competing programs is perhaps more difficult than ever before. In the case of the airlift program, such assessment cannot be undertaken judiciously without an understanding of the complex factors adversely influencing the program situation today. Each of these factors will be addressed briefly in the paragraphs to follow.

### a. Airlift Requirements in National Contingency Plans versus National Strategic Airlift Resource Capability

This portion, classified SECRET, is not included in this copy. If a classified volume is required, direct a request to LMI.

### b. Strategic Airlift Enhancement

The preceding review of contingency requirements for strategic airlift as against the total capability of the National Strategic Airlift Resource clearly illuminates the capability shortfall, particularly in the ability to transport oversize and outsize items. These items are principally Army heavy firepower units such as tanks, armored personnel carriers, self-propelled cannons, and other supporting tracked or wheeled vehicles. Quite obviously, should a need arise for an immediate build-up of U. S. military strength in any area, the rapid transport of this heavy firepower is of prime importance.

The requirements expressed in the preceding review are based primarily on plans for reinforcement of NATO Europe in the event of a war contingency and are thus viewed by some as a maximum case. The validity of this view could be supported if one assumes that the conflict would be confined to Europe alone and if one also assumes that the stated requirements are absolute. If on the other hand, one assumes that the conflict would rapidly expand to other areas of the world, existing airlift

capabilities are even more deficient. Further, experience in the Vietnam conflict showed that demands for airlift invariably exceed initially stated requirements. Statistics from 1967 show that the annual statement of Service requirements totaled 1520.8 MTM and that 4105.9 MTM were actually flown. For 1968, the same statistics were 4172.5 MTM initially forecast and 5202.2 MTM actually flown. For example, an enemy thrust may demand the immediate, unplanned movement of a combat unit or some unanticipated action by the enemy may result in accelerated expenditure of materiel for which resupply is urgently required. These are the types of unforeseen eventualities to which successful response can only be through employment of airlift. Eventualities like these occurred frequently throughout the conflict in Vietnam and were among the major causes of the escalation of actual ton miles flown over initially calculated requirements.

In proposing airlift force improvements toward the level necessary to meet contingency requirements, MAC is therefore caught in the age-old argument of "how much is enough" and in the difficult position of achieving credibility for their views in that argument. Under the assumption that the approved war plans of the Joint Chiefs of Staff provide the most credible basis for expressing military requirements, MAC has translated the strategic airlift requirements in those plans into a proposal entitled Airlift Enhancement Program.

For the MAC airlift force, the Program proposed modification of the C-5 wing to insure a fatigue life of 30,000 hours, a stretch of the C-141 to increase capacity by approximately 30%, addition of an aerial refueling kit to the C-141 and an increase of daily utilization rates for both aircraft with accompanying increases in aircrew ratio, maintenance personnel and aircraft and engine spares. Congress has authorized and appropriated the initial funding for the early development and test portions of the C-5 and C-141 proposals but has denied all except a minor portion of the funding for the last proposal.

It is not necessary to present in this analysis the detailed justification of these proposals since such material is now recorded in the reports of Congressional airlift hearings. Further, since at least the initial funds have been appropriated for the C-5 and C-141 proposals, it would appear that there is some understanding of the value of more than tripling the currently estimated fatigue life of the C-5 and of extending the capabilities of the C-141. Implementation of the C-5 proposal will not reduce the shortfall in MAC capability to meet wartime requirements, but will insure that the C-5 will be able, for many years, to transport its currently planned share of the requirements. The C-141 modification will reduce the overall oversize shortfall, though not that related to outsize cargo, by approximately 25%.

The proposal involving increased daily utilization rates, which was denied by the Congress, is of major importance to the ability of MAC to respond to contingencies, whatever the capability of the aircraft with which it is equipped. A discussion of this subject will be included further on in this analysis under the heading Strategic Airlift Readiness.

For the CRAF, the Airlift Enhancement Program proposed the modification of 110 existing commercial wide-body passenger airliners to include nose or side door loading features and strengthening of the cabin floor. The justification for and the details of this proposal are also in the Congressional records and do not require repeating here.

It must be pointed out in behalf of this CRAF improvement proposal, however, that its implementation would alone reduce the wartime airlift shortfall by 55%. If the shortfall is to be eliminated or at least significantly reduced, the only alternatives are to procure more military aircraft of the C-5 size or to take maximum advantage of the wide-body passenger aircraft in the commercial fleet. The latter are useless, except for passenger carriage and limited bulk cargo movement,

without the proposed modification. It is conservatively estimated that to produce the same amount of airlift represented by this latter proposal instead through new military aircraft procurement would cost thirteen times the estimated price of the total CRAF modification and would cause a delay of six to eight years in acquiring the capability. That the Congress rejected this proposal can only indicate that the presentation of wartime requirements and of existing strategic airlift capability to meet them lacked credibility.

In sum, the first aspect of the National Strategic Airlift Dilemma lies in the fact that increased demands for employment of strategic airlift in contingencies which have been generated by clear demonstrations of our airlift know-how and prowess and by changes in national defense policy cannot be met by the existing capability of the total National Strategic Airlift Resource. Until proposals for enhancing that capability are approved and implemented, we have a national defense policy and war plans stemming from it which cannot be executed in the way or to the degree intended.

c. Strategic Airlift Readiness

The effective response of strategic airlift to contingency requirements depends not only on the total MAC and CRAF lift capacity existing at the time of the emergency but also on the state of readiness of the units involved. MAC response to a contingency is expected to be instantaneous. CRAF response is within 24 hours for aircraft committed to Stages I and II and within 48 hours for all other committed aircraft (Stage III).

Readiness of CRAF is not a major concern in that crews and aircraft are daily engaged in normal overseas carriage on routes essentially similar to those which would be flown during an emergency. The airlines have adequate crews, maintenance personnel and spares to assure the CRAF sustained wartime operating criteria of 10 hours per aircraft per day. Limited operation under MAC contract during peacetime is adequate to familiarize CRAF carriers with all aspects of the MAC airlift system.

To produce the lift anticipated in contingency plans, the MAC strategic airlift force emergency operating criteria has been established in those plans as a surge to 12.5 hours per aircraft per day for the first 45 days and thereafter as a sustained rate of 10 hours. The ability of MAC to achieve these emergency operating rates at the time of occurrence of the emergency is entirely dependent on the peacetime operating level, back-up support, manning level and training posture of the MAC airlift units. Once again, the "how much is enough" question arises in determining what the peacetime operating level and that of the other supporting factors must be.

Studies conducted several years ago showed that the peacetime operating rate for airlift units should be one half of the rate which the units were expected to sustain during an emergency. These studies, however, considered units equipped with reciprocating engine aircraft. Experience has shown that the great flexibility and reliability of jet-powered aircraft permits a lower base of peacetime operation from which to surge to wartime levels. The MAC flying hour request in the FY76 budget indicated that daily utilization rates of 2.34 hours per aircraft for the C-5 and 3.49 hours per aircraft for the C-141 are adequate as a total force peacetime operating base. Other MAC studies are currently in progress to further define total system readiness requirements. Temporary management action has been taken to reduce the C-5 utilization rate to 1.5 hours per aircraft per day in order to preserve the wing life of that aircraft pending approval of the required wing modification. It is important to repeat, however, that the ability to surge to wartime levels from this peacetime operating posture is also dependent on a peacetime aircrew ratio, maintenance personnel strength and war reserve spares support adequate to sustain the high operating rate.

That these peacetime operating base requirements are fact rather than theory was clearly demonstrated during the Vietnam conflict. Admittedly, the statistics of the 1964-1969 period are somewhat biased in that MAC was then converting to the C-141. To eliminate this bias, the time to convert a squadron to full strength in C-141s will not be considered. Looking only at the time subsequent to each squadron's

achievement of initial operating capability, the facts are that spares support, maintenance strength and aircrew ratio limited the squadron to an operating rate of 5 hours per aircraft per day. Each squadron was allowed 7 months to attain an increased rate of 8 hours per day. During these seven months, the aircrew ratio and back-up support were brought up to the required levels. An operating level of 10 hours per aircraft per day was achieved in some squadrons for limited periods but this did not occur until the latter part of the period when sufficient resources had been allocated to MAC from other Air Force organizations. These resources were drawn principally from the Strategic Air Command as a result of an Air Force decision to accelerate the phase-out of B-47 units. Had not these jet experienced aircrews and maintenance personnel been fortuitously available to MAC, high operating rates in the C-141 would not have been achieved as quickly.

It is important to note here that contingency planning for Vietnam, such as it was, did not count heavily on strategic airlift even though it ultimately became an important factor in the conflict. Airlift was originally expected to provide routine resupply and replacement and not to engage in unit moves into the battle area. The role of strategic airlift in today's contingency planning, as has been pointed out earlier in this analysis, is very different. If airlift cannot measure up to the expectations in these plans, the execution of the plans is in jeopardy. MAC response must be as immediate as the emergency and not following a build-up period long after the emergency has occurred.

Aside from the factors already discussed, maintenance of MAC readiness is complicated by the necessity to preserve competence in two distinct areas. The first of these is internal to MAC and involves continuous exercise of the world-wide airlift system. The second pertains to MAC's combat role and necessitates continuous joint training between MAC units and the Army, Marine, and Air Force units to be lifted.

The first of these areas is frequently overlooked in considering the peacetime requisites for MAC readiness. Many tend to view readiness as a matter of

cockpit crew proficiency. Those who hold this view would reduce MAC peacetime operating rates on the basis that some of the proficiency training for the cockpit crew can be accomplished, at a lower cost, in simulators. Such a view is expressed in Senate Appropriations Committee Report 94-446. The fact is that MAC readiness to respond to emergencies demands proficiency not just in the cockpit crews but throughout all elements of the MAC world-wide airlift system. The operating word here is "system" for that is what is involved. The CONUS terminals, throughput bases, destination terminals, communications systems and maintenance facilities throughout the system must be constantly exercised. If the system is to be ready, then loadmasters, cargo handlers, operations controllers, terminal managers and operators, and maintenance personnel must be just as ready as the cockpit crews. There are no simulators for this training. Their level of competence depends solely on the level of MAC flight operations through the system. Part of the required peacetime utilization rate is thus devoted to this maintenance of system readiness through world-wide logistic support missions.

The remainder of the required daily utilization rate is allocated to the second area of competence, preparation for joint operations. The unit move by air of a major organization such as a mechanized or armored Army division is a complicated affair and depends on much competence in both the airlift and ground units. Considerable expertise is required in the preparation of all items for loading as well as in the actual loading operations. Equipment loads, wheeled and tracked vehicles, fire power units and personnel are not loaded haphazardly but rather are tailored for each aircraft in the series on the basis of the ground commander's plan for sequence of arrival. The enormous number of items to be loaded demands close control over the assembly areas, the approaches to the airfield and the airfield itself. To provide the necessary degree of control of both the air and ground forces involved, MAC forms, from experienced terminal operating personnel, Airlift Control Elements (ALCEs) which operate in the Movement Control Centers at the originating and destination bases jointly with the Army

Departure/Arrival Airfield Control Group. Even as a one time proposition, the training of loaders, drivers, control personnel and all others involved must be extensive if orderliness and timeliness are to prevail in an actual air movement. Considering the personnel turnover in both air and ground units, it can be seen that a continuing training program of sizable magnitude is essential. During the Vietnam conflict, this type of training paid off handsomely when a major part of the 25th Infantry Division was moved by MAC from Hawaii direct to Pleiku to counter a dangerous enemy thrust into the Vietnamese highlands.

Even more complicated than unit movements involving air landing are air drop operations for both personnel and heavy equipment. Specialized training for ground personnel must be given in load preparation and in actual loading. For the ground units, the training of personnel must include recovery of materiel after air drop and hence, training exercises normally include actual flight and air drop.

To prove out the quality of the training, occasional unit or large scale maneuvers simulating war conditions as nearly as possible must be conducted. While a joint training and exercise program is scheduled annually, it would appear that an increase in the scope of the program in peacetime would contribute to better peacetime utilization of MAC while at the same time developing a higher level of both air and ground unit know-how in joint action.

The combined activities related to maintaining competence in these two areas just discussed should ideally produce a daily utilization rate high enough to insure MAC readiness and the rate should itself justify the aircrew ratio, maintenance personnel and spares to sustain the wartime continuous operating rate. Actually, however, this is not presently the case. The MAC current utilization rate is 1.5 hours per aircraft per day for the C-5 and 3.38 hours per aircraft per day for the C-141. The total force aircrew ratio is 3.25 crews per aircraft for the C-5 and 3.5 crews per aircraft for the C-141. Maintenance personnel and spares support are not adequate to sustain the wartime objective rate.

As previously mentioned in this analysis under the heading Strategic Airlift Enhancement, Congress denied approval for proposals which included a peacetime utilization rate of 2.34 hours per aircraft per day for the C-5 and 3.49 hours per aircraft per day for the C-141 and an aircrew ratio of 4 crews per aircraft in the force. In addition, Congress reduced the total funding requested by the Air Force for war reserve spares by \$300 million which forced the Air Force to curtail the C-5/C-141 war reserve spares allocation from the required \$198.7 million to \$39.7 million. These rejections indicate that these requirements for the necessary readiness posture were not adequately explained or entirely understood. Even if approval were granted for those Airlift Enhancement Program proposals which were intended to increase MAC capacity toward that required by existing contingency plans, MAC could not reach the wartime surge or sustained operating levels without approval of the requested readiness factor increases.

The second component of the National Strategic Airlift Dilemma, then, is that although the requirements for the maintenance of an adequate readiness posture in peacetime are fully understood by MAC through both study and demonstration and although MAC has requested the operating level and resources which comprise these requirements, approval has not been forthcoming. Even an airlift force having the capacity to satisfy war plan lift objectives has not the capability to do so if, at the time of the emergency, its readiness and its back-up support are deficient.

d. MAC Employment in Peacetime Logistics Support

The typical weapons system, be it a bomber, fighter or a tank has application only in military conflict. The massive funding entailed in the procurement of these systems has no pay off in peacetime. In this regard, the airlift aircraft is atypical. In peacetime, a modest return can be expected from the investment made for its wartime employment. Personnel and materiel must be transported to and from overseas garrisons and to the extent that this logistic flow is channeled onto MAC airlift instead of other

modes of transportation, a peacetime return on investment is realized. Further, such employment of MAC services is the most logical means of generating the utilization rate which is required to maintain MAC readiness at the appropriate level to meet a wartime surge. It is an especially important peacetime use of MAC in that it is the most economical means by which the entire MAC airlift system can be continuously exercised.

Unfortunately, today's employment of MAC in logistics support falls considerably short of generating the flight hours required to maintain readiness for the wartime mission. The reasons for this are several and include changes in the levels of forces deployed permanently overseas and in the methods by which they are supplied, lack of modernization of the DOD logistics system, Army reservations toward expanded use of air logistics, questionable management of funds originally justified and allocated for air transportation and outdated procedures governing the Airlift Services Industrial Fund (ASIF).

In 1968, world-wide MAC cargo airlift equated to 3711.4 MTM. In 1975, the same statistic is 1036.8 MTM. Part of the reason for this drastic reduction is that we are no longer engaged in a conflict as we were in 1968. This is not the entire explanation, however. Among other causes for the reduction are the retrenchments we have made in the numbers of troops stationed overseas in various areas and the inter-governmental agreements which have been effected regarding overseas procurement in some areas of certain supplies for troops stationed in those areas. In 1968, however, MAC was operating at wartime levels and in 1975, it operated at a less than normal peacetime level. One would anticipate that the reduced operating rate would approximately match the level of air shipments required for the curtailed overseas deployed forces. That such a match has not occurred is due to other factors to be discussed.

A DOD logistics system, as such, does not exist. Instead, there is a composite of the individual logistics systems of the separate Services augmented by the Defense Supply Agency. Basically, the Defense Supply Agency provides common items of

supply to all of the Services while the logistics system of each Service supplies Service-peculiar items in ways and by modes which are either traditional to or inherent in the nature of each Service. The storage and distribution systems of the Services vary widely in location, access to airfields, modernity, facility age and other major factors. To date, no centralized examination of this DOD logistics maze has been completed to determine what economics and efficiencies might be realized through consolidation, relocation and modernization within the overall storage and distribution system, and by maximizing the favorable interactions between a restructured storage and distribution system and the existing or an enhanced airlift system. Such a broad and comprehensive study, objectively conducted, would unquestionably result in a far greater employment than exists today of MAC in peacetime logistics support.

It would be a disservice to Army management to create the impression here that the Army is opposed to incorporation of air transportation in their logistics system. In addition to *past studies on the use of air logistics*, the Army has underway today a number of efforts to take greater advantage of available economic airlift. Nevertheless, the Army does have reservations regarding expanded use of air logistics which tend to prevent the enthusiastic and dedicated exploration of the subject which is required to optimize the logistics/air transportation interaction. These reservations stem from two causes, both logical from an Army viewpoint. The first of these relates to the effect of air transportation costs on the Army's program for modernization of its storage and distribution system. In recent years, the Army has accelerated its continuing effort to apply computer technology and modern business methodology to the control of inventories, customer requisitioning and subsequent distribution. This up-dating process has clearly revealed that a stable pipeline of known time length is in itself a form of storage and that this fact can be used as a basis for substantial reduction of previous depot stockage levels. Army logisticians are fully aware of the further reductions in inventory of certain high value items and classes of supply

that could be realized through greater use of air transportation. As will be discussed later in this analysis, however, the existing ASIF tariffs are so high that such an increase in air transportation usage would be at a prohibitive cost. Other time factors within the chain from customer request for an item until his receipt of it are as yet such that there is no delivery urgency to drive Army logistics toward air transportation regardless of the high cost. As a consequence, Army employment of strategic airlift for peacetime logistic support has tended to decrease rather than to expand.

This brings us to the second major reason for Army concern regarding air logistics. The Army has serious doubts that once a critical portion of the peacetime logistics pipeline had been transferred from surface to air, the required airlift to perform that function would continue to be provided in time of war emergency. Obviously Army logistics would be completely disrupted if the required logistics airlift were withdrawn for other contingency purposes. Lacking positive assurance of continuing airlift availability, the Army would be reluctant to depend on air logistics even if the dollar savings in doing so were proven to be of sizable magnitude.

It is worth noting that while Navy and Air Force shipments by air as a proportion of total shipments have remained today about the same as in 1968; Army statistics have shown a drastic fall off. In 1968, Army shipments represented 64.1% of total DOD shipments overseas. In the same time period, Army shipments by air were 42.2% of all air shipments. In 1975, Army shipments equaled 58.9% of total DOD shipments overseas and Army shipments by air were 20.6% of all air shipments. These statistics would indicate that many of the items shipped by air in 1968 are now moving by surface transportation. One would conclude that revision of Army shipping policy would add substantial tonnage to the cargo now transported by MAC.

Each year, each Service calculates, among other needs for transportation, the airlift required for logistics support. This requirement is translated into dollars by application of the existing MAC tariff and the amount if justified in the

Service budget. As the operating year progresses and unforeseen needs arise for funds in one of the Services, funds justified for air transportation are frequently reprogrammed to those previously unforeseen needs. The services either use cheaper modes of transportation or reduce shipments in order to free up transportation funds. Further, in the event of a major escalation in the MAC tariff, transportation managers in the Services shift shipments away from MAC to cheaper modes of transportation regardless of the effect on shipping times or on the escalation of costs in other areas of the distribution system. The effect on MAC in either case is a further decrease in productive peacetime use of the airlift force.

Part of the problem just referenced lies in the procedures and methods employed in the operation of the Airlift Services Industrial Fund (ASIF). It must be said at the outset that the problem is not because of the ASIF per se. The ASIF is not only a method of fiscal accounting. It is also a valuable management tool for MAC. Further, use of the basic procedures on which the fund is operated bring a necessary discipline to establishing requirements for and using airlift. Even should it be determined at some later date that fiscal accounting for transportation agencies of the DOD is not optimally served by industrial funding, whatever new method is decided upon would have to incorporate most of the basic procedures of the ASIF or MAC would lose both management capability and control of the use of airlift.

There are several aspects of the ASIF which, if changed, would enhance customer use of MAC airlift. These aspects all contribute to the principal deficiency in MAC relations with its customers today - the lack of a competitive, stable tariff. One undesirable aspect is the mandate to end each operating year at zero profit or loss. Realistically, the annual statement of Service airlift requirements, on which are based both the level of procurement of commercial augmentation and the tariff, can never be sufficiently accurate for tariff computation. World circumstances affecting the Services invariably cause major fluctuations in airlift usage as compared to initially stated

requirements. To illustrate both of these points, let us take a hypothetical three-year period. The first year ends with an exact zero profit/loss in the ASIF. The tariff for the second year will then be computed on the cost of the services to be provided to meet the Services annual statement of requirements for that year. However, during that second year, two major crises occur overseas creating a large overfly for the year. Obviously, the year will end with a large profit in the ASIF. The tariff for the third year is then computed by deducting from the cost of the services to be provided the amount of the previous year's profit. In this third year, a fund squeeze hits all Services and major efforts are made to conserve transportation funds for transfer to other purposes. A substantial underfly occurs in the MAC program and with an abnormally low tariff, the third year ends with a gross loss which must, in turn, be made up by an inflated fourth year tariff.

Another aspect of the procedures which is unrealistic is the inclusion in tariff computation of the cost of MAC flight hours above and beyond those in which customer service is actually provided. In recent years, MAC employment in logistic support has been at a level lower than that required to maintain system readiness. All readiness hours flown have nonetheless been charged to the ASIF. This has created a cycle of upward tariff movement and consequent adverse customer response. The high tariff causes the Services to cut back on their stated annual requirements for airlift and throughout the operating year, transportation managers continue to seek cheaper modes of transportation. Both of these actions increase the proportion of hours flown only for readiness to hours flown productively and thus inflate tariffs. It should not be necessary to observe that this decreasing peacetime use of MAC draws many calls for reduction in the MAC flying hour program regardless of the compromise of MAC readiness which this would entail.

There are ways to revise the ASIF to eliminate these deficiencies and to arrive at a tariff which is both stable and competitive. While initial steps have been taken toward these ends, a full scale examination of needed revisions is long overdue.

Faced with the low level of utilization for logistic support which has been described in the foregoing, MAC requested an appropriation in the FY 76 budget for 47,361 flying hours to make up the difference between the hours flown in support of customers and the hours which must be flown to maintain airlift system readiness. Congress is not accustomed to appropriating funds for MAC flying hours other than in the USAF mission account for the joint training and exercise program, and therefore denied funding for all except 6700 of these requested flying hours. Senate Appropriations Committee Report 94-446 addresses this subject and assigns the cause of MAC underutilization to lack of adequate centralized management of DOD transportation resources. As can be seen from the preceding discussion, the causes of MAC underutilization lie not in faulty management of transportation, but rather in inadequate assessment and analysis of the DOD logistics system and of the optimal interactions between that system and DOD transportation resources, particularly air transportation. It is apparent from the content of the Senate report that the testimony at the hearings did not effectively explain either the flying hour requirements to maintain MAC airlift system readiness or the root causes of the underutilization of MAC for logistic support.

It should be noted that a shift of some of the cargo now transported by surface means to air transportation may bring some protest and arguments from surface shipping interests. The fact is that bulk cargo comprises by far the major proportion of DOD shipping tonnage. Bulk cargo is not economically transported by air and will always be assigned to surface shipping modes. The withdrawal from surface transportation for transfer to air of high value items which are economical for air movement would represent at the same time a relatively small percentage decrease in the tonnage shipped by surface and a relatively large increase in that now shipped by air.

The third facet of the National Strategic Airlift Dilemma can thus be seen as a complex set of interrelated circumstances which combine to deny to MAC the

best justification for a peacetime utilization which will be adequate to maintain readiness for contingency demands and to prevent the DOD from realizing a rightful peacetime return on the large investment in MAC.

e. The Civil Reserve Air Fleet (CRAF)

CRAF contribution to overall National Strategic Airlift Resource capacity is substantial. Presently, of the total National Resource cargo capability, CRAF represents 41%. Because of the characteristics of the aircraft with which the CRAF carriers are equipped, CRAF is of little value in reducing the deficit in oversize and outsize lift. CRAF thus accounts for only 27% of the oversize lift now available from the total National Resource and none of the outsize. Nonetheless, CRAF is a valuable asset, particularly in handling resupply operations during periods when MAC aircraft are engaged in a major unit move. Considering the passenger movement requirements in current contingency plans, CRAF capacity is in excess of the requirements.

During the conflict in Vietnam, all CRAF carriers enjoyed MAC contracts in the multi-million dollar range. As the conflict wound down and was eventually terminated, procurement of commercial airlift augmentation reverted to pre-Vietnam levels. This dramatic change in standard of living for the commercial carriers was to them a shock of major proportions. To the scheduled carriers, MAC contracts had never been a major percentage of total business. But the timing of the conclusion of the conflict in Vietnam coincided with the huge increase in seat capacity on commercial routes generated by the introduction of the new wide-body jets and with a period in which the normal annual percentage rise in commercial traffic was not realized. These traffic miscalculations and heightened competition from foreign carriers produced massive financial losses in the scheduled carriers. Thus, the availability of profitable MAC contracts assumed a new importance. To the supplemental carrier segment of the industry, the curtailment of MAC contract values was of even greater concern. They had devoted almost all of their available equipment to MAC contract throughout the Vietnam

period. At the end of that period, they were left in a scramble for replacement commercial business at a very unfavorable moment. Some succeeded in developing such business to a degree adequate to survive. Others progressed only to bankruptcy.

As the 1970s progressed, the position of the commercial carriers was exacerbated by the fuel crisis and by the deep economic recession that affected world economy. Scheduled and supplemental carriers both suffered losses which, in the face of a continued low dollar volume of MAC contracting, triggered a series of reactions to previous DOD/CRAF relationships. Some scheduled carriers, believing that the MAC contract volume was too low to justify continued dedication of aircraft to DOD business, declined to participate in peacetime DOD business. For other carriers, this deterioration in previous DOD incentives for CRAF participation coupled with an unexpectedly slow growth in commercial air cargo, resulted in decisions adverse to procurement of additional cargo capable aircraft, thus halting any improvement in the commercial sector contribution to the National Strategic Airlift Resource. Still other carriers, electing to continue to participate in DOD contract airlift, began to lobby through their trade associations for a greater share of total DOD traffic. One such proposal that was put before the Congress and is still active today was for a 50/50 split of all DOD cargo shipments between MAC and CRAF.

Administration of this CRAF proposal would be extremely difficult if not impossible, due to fluctuations in the generation of outsize and oversize cargo not transportable in CRAF aircraft and by similar fluctuations in shipments of such nature and destination as to be unacceptable for commercial carriage. Under a directed 50/50 split of DOD cargo, these variations would result in periods of limited cargo for either one or the other of the participants. Thus, such an arrangement could prove to be not only an administrative headache but also an operating nightmare. More importantly, at a time when the total logistic support utilization of MAC is sub-normal, a 50/50 split of DOD cargo would exacerbate the already existing problem of maintenance of an adequate

MAC readiness posture. It should also be noted that such a split of cargo would not produce revenues of sufficient value to be of major assistance in the solution of current carrier financial problems. MAC calculations indicate that, even assuming that it would be possible to give to the commercial carriers exactly 50% of all the cargo that could be transported in their aircraft, the annual allocation would represent approximately 775 MTM and the formula for contract awards would result in an increase in the value of the contract of the carrier receiving the largest annual award of approximately \$14.9 M.

In the early 1960s, a document known as the Presidentially Approved Courses of Action set forth the relationships which would pertain between the DOD and the CRAF. These guidelines were exceptionally effective for the conditions existing in the 1960s. As the decade drew to a close, however, it became increasingly apparent to MAC that a new statement of policy would be required for the 1970s. At the time of issuance of the Presidentially Approved Courses of Action, the then MATS was essentially a transportation agency, equipped largely with commercial passenger type aircraft, transporting principally passengers and flying routes which frequently paralleled those of the commercial carriers. Among other things, the document provided guidance for an equitable division of this type of transportation responsibility between MATS and CRAF. By the end of the decade, however, the then MAC had assumed a role very different from that of MATS in 1960. As has been pointed out earlier in this analysis, MAC had been transformed into a combat force on whose capability and readiness much of national contingency planning rested. This major change in the character of MAC was a principal cause of the need for a new policy statement of DOD/CRAF relationships. Additionally, it was seen by MAC in the late 1960s that the commercial carrier appetite, whetted by the huge contracts of the mid-Vietnam period, would create expectations which could not be satisfied post-Vietnam.

While some aspects of the original policy remain valid today, modernizing of the entire policy appears warranted in order to address such current day

issues as: firm assertion of the primacy of MAC for peacetime movement of DOD cargo unless such cargo movement exceeds the flying hours required to maintain airlift system readiness; clarification of practices regarding peacetime carriage of DOD passengers so that use of MAC aircraft for this purpose in certain logical and definable situations is not viewed by CRAF as a violation of policy; assurance that civilian aircrews will operate into war zones in time of emergency and that in so doing, they are afforded full rights under the Geneva Convention and finally, revitalization of incentives for the commercial airline industry to participate in CRAF through procurement of cargo capable aircraft.

As early as 1968, MAC began to propose a new set of guidelines to the DOD to replace the Presidentially Approved Courses of Action. Unfortunately, for a variety of reasons, no action was taken on the MAC proposals and as of this date, no new policy has been formulated or adopted. Absent such a revised policy statement, developed in the DOD and approved by the Administration and the Congress, relationships between the DOD and the CRAF will continue to deteriorate, and the CRAF carriers will continue to lobby for legislation which would force an arbitrary, and to the DOD unacceptable, division of DOD traffic.

Perhaps more importantly, lacking such a new policy statement, the desire of both MAC and the DOD to stimulate the United States air cargo industry will continue to be thwarted. DOD incentives to the commercial carriers to participate in CRAF and thus to procure cargo capable aircraft of intercontinental range and of a configuration best suited to military wartime emergency employment have primarily been based on the dollar value of MAC contracts. Those past incentives are no longer fully effective. As intimated above, the revised policy must envision new and innovative incentives geared to today's realities if air cargo industry stimulation is to be achieved. Further, with restatement of National Transportation Policy under consideration by an intergovernmental agency group, now is the time to offer up-dated DOD/CRAF relationship patterns for inclusion in that overall policy.

The final aspect of the National Strategic Airlift Dilemma thus involves the deterioration of once strong and viable relationships between the DOD and the CRAF with adverse effects on MAC, on the commercial sector contribution to the National Strategic Airlift Resource and on the expressed DOD desire to stimulate the United States air cargo industry.

#### SUMMARY

The combined capability of the strategic airlift force of MAC and the international CRAF is substantially less than that which is required to execute national war contingency plans and the readiness posture of MAC has now reached, or is rapidly approaching, a level from which an immediate surge to and maintenance of specified wartime operating rates cannot be expected. Among the many causes of these deficiencies, the three which appear to be basic are inadequate recognition of the important role of modern strategic airlift in current war contingency planning, insufficient exploration of the logistics system/transportation system interface to maximize peacetime utilization of strategic airlift while at the same time improving the efficiency and economy of the logistics system and failure to develop and promulgate realistic modern national policy pertaining to the relationships between the DOD and the CRAF.

The fate of a proposal or a plan or an organization often depends more on the decision makers' perception of it than on the realities relating to it. To a significant extent, so it is today with strategic airlift. Some important decision makers perceive it as simply a transportation agency whereas the reality is that strategic airlift has become a vital element in the development of war strategy and has the potential to be of even greater influence. That strategic airlift occupies this position would appear to be strong justification for it to receive a priority for support equal to that of the combatant forces which depend on the competence and immediate availability of strategic airlift for

their contingency deployment and initial resupply. The necessary degree of support of strategic airlift has not been forthcoming in recent years. That fact would appear to warrant a concerted DOD effort to inform all internal and external sources of decision affecting the future of strategic airlift as to the true current day role of strategic airlift.

The readiness of MAC to surge to and maintain designated wartime operating rates is dependent, among other things such as war reserve spares support and crew ratios, on peacetime activity of a magnitude that will continuously exercise all components of the world-wide airlift system. Further, the willingness of the commercial airline industry to participate in the CRAF rests, among other possible incentives, on a reasonable contract award for peacetime services to the DOD. The most effective and most economical means of satisfying these demands is through peacetime utilization of strategic airlift in support of the DOD logistics system. Strategic airlift is being so used today but not to the degree necessary to exercise MAC or to motivate or stimulate the commercial air cargo industry. An in depth, objective examination of DOD logistics system/transportation system interactions would insure maximized peacetime airlift employment. Along with other shorter term actions which could be taken to increase peacetime utilization, such an examination is overdue as a longer term approach to achieving maximum advantage to both airlift and the logistics system.

Although some new policy has been adopted in recent years, the basic policies governing relationships between the DOD and the CRAF were issued more than a decade and a half ago. In the intervening years, the character of and the capital investment in MAC have changed radically from those existing at the beginning of the period and world economic conditions have altered the earlier commercial airline industry views on the conditions for their participation in the CRAF. These divergences from the assumptions on which the still existing policies were based clearly establish the need for review and updating of those policies. On-going intergovernmental agency efforts toward the preparation of new National Transportation Policy add further reason for timely

restatement of DOD/CRAF relationships. Early action by the DOD to develop the needed policy revision is indicated.

The National Strategic Airlift Dilemma can be neither solved nor significantly ameliorated until these three basic issues are addressed head-on by senior DOD management involved. Many of the actions which can lead to solution are within the control of the DOD while others necessitate joint effort among the DOD, the Congress, the DOT and the commercial airline industry. A situation review and assessment of such actions by the DOD followed by aggressive implementation is long overdue.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) The National Strategic Airlift Dilemma Volume 1; <del>The National Strategic Airlift Dilemma: An Approach to Solution, Volume II</del>		5. TYPE OF REPORT & PERIOD COVERED
7. AUTHOR(s) Howell M. Estes, Jr.		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Logistics Management Institute 4701 Sangamore Road Washington, D. C. 20016		8. CONTRACT OR GRANT NUMBER(s) SD-321 ✓
11. CONTROLLING OFFICE NAME AND ADDRESS Office of the Assistant Secretary of Defense (Installations and Logistics)		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE April 1976
		13. NUMBER OF PAGES 82
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report)  "A" Approval for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)  Airlift, Transportation, Military Airlift Command, CRAF		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  The report is in two volumes. Volume I attempts to put the strategic airlift problem in perspective. The intent is to provide a basis for better understanding the complex factors that influence the program. This volume concludes that although national war contingency plans currently depend heavily on strategic airlift, the existing combined capability of the Military Airlift Command (MAC) and the Civil Reserve Air Fleet (CRAF) is inadequate to meet the strategic airlift demands of those plans and that the readiness of MAC to respond to a war emergency is being jeopardized. Each of several		

(Cont'd fr p1473A)

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

interrelated factors which <sup>underlie</sup> ~~underlay~~ these strategic airlift deficiencies is examined. ✓

Volume II examines approaches toward solution, or at least amelioration, of the problems cited in Volume I. Complete resolution of the strategic airlift dilemma, even with continuing full support of necessary actions by all decision makers involved, cannot be expected realistically except in the long term. There are, however, actions which can be implemented immediately, which would in the near or mid-term timeframe, narrow the gap between strategic airlift capability and known wartime airlift requirements and improve MAC readiness posture. Recommendations are included in this volume for correcting many of the perceived deficiencies.

1473B

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)